

(19)



Eur päisches Patentamt

Eur pean Patent Office

Office européen des brevets



(11)

EP 0 733 931 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:

13.08.1997 Bulletin 1997/33

(51) Int. Cl.⁶: G02F 1/1343

(43) Date of publication A2:

25.09.1996 Bulletin 1996/39

(21) Application number: 96104509.3

(22) Date of filing: 21.03.1996

(84) Designated Contracting States:

CH DE FR GB LI NL

(30) Priority: 22.03.1995 JP 88797/95

22.03.1995 JP 88798/95

22.03.1995 JP 88799/95

31.08.1995 JP 223403/95

31.08.1995 JP 223405/95

(71) Applicant: Toppan Printing Co., Ltd.

Taito-ku Tokyo (JP)

(72) Inventors:

• Fukuyoshi, Kenzo

Tamana-shi, Kumamoto-ken (JP)

• Kimura, Yukihiro

Tamana-shi, Kumamoto-ken (JP)

• Imayoshi, Koji

Tamana-gun, Kumamoto-ken (JP)

• Koga, Osamu

Tamana-shi, Kumamoto-ken (JP)

• Horachi, Katsunori

Yokaichi-shi, Shiga-ken (JP)

(74) Representative: Tiedtke, Harro, Dipl.-Ing. et al

Patentanwaltsbüro

Tiedtke-Bühling-Kinne & Partner

Bavariaring 4

80336 München (DE)

(54) **Multilayered conductive film, and transparent electrode substrate and liquid crystal device using the same**

(57) A multilayered conductive film (10) has a silver-based layer (11) formed of a silver-based metallic material. A first transparent oxide layer (12) is provided on one surface of the silver-based layer (11), and a second transparent oxide layer (13) is provided on the other surface of the silver-based layer (11). The first and second

transparent oxide layers (12, 13) are independently formed of a compound oxide material of indium oxide with at least one secondary metal oxide whose metallic element has substantially no solid solubility in silver.

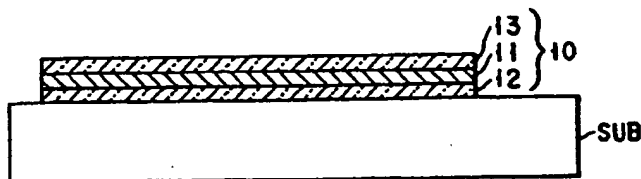


FIG. 1



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 10 4509

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	DE 42 39 355 A (LEYBOLD AG) 26 May 1994 * column 2, paragraph 1 - paragraph 5 *	1,2,4,5, 7-9,14	G02F1/1343
A	US 4 734 174 A (VENIS JR JOSEPH J) 29 March 1988 * column 3, line 3 - line 23; example 2 *	1,2,4,5, 7-9	
A	WO 90 11975 A (ANDUS CORP) 18 October 1990 * page 5, line 14 - page 7, line 14 *	1,2,4,5	
A	PATENT ABSTRACTS OF JAPAN vol. 017, no. 413 (C-1092), 3 August 1993 & JP 05 085783 A (ASAHI GLASS CO LTD), 6 April 1993, * abstract *	1,2	
A	PATENT ABSTRACTS OF JAPAN vol. 009, no. 277 (E-355), 6 November 1985 & JP 60 120575 A (HANDOUTAI ENERUGII KENKYUSHO:KK), 28 June 1985, * abstract *	1,2	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			G02F
Place of search THE HAGUE		Date of completion of the search 23 June 1997	Examiner Wongel, H
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 150 (3.92) (P4/C31)